U.S. ARMY

SIMULATION, TRAINING, AND INSTRUMENTATION COMMAND (STRICOM)

WARFIGHTERS' SIMULATION (WARSIM) 2000 PROJECT OFFICE

SYSTEM REQUIREMENTS DOCUMENT (SRD)

FOR THE

ENGINEERING AND MANUFACTURING
DEVELOPMENT (EMD)

OF THE

WARSIM 2000 INTELLIGENCE MODULE (WIM)

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FOR THE

WARSIM 2000 INTELLIGENCE MODULE (WIM)

1.0 SCOPE

1.1 Purpose

The purpose of this document is to state the Warfighters' Simulation (WARSIM) 2000 Intelligence Module (WIM) system's operational requirements. It is to be developed with the same system architecture and software design standards as the other Battlefield Operating System (BOS) modules within the WARSIM 2000 system. An approved WIM appendix to the WARSIM 2000 System Specification shall become part of the WIM engineering and manufacturing development (EMD) contract. The requirements stated in this document shall act as a basis for all future WIM system specifications and contractual documents.

1.2 Identification

The WIM system shall be developed as an integrated module of the WARSIM 2000 system. As such, WIM will use computer-based simulation and associated hardware to support the training of unit commanders and their supporting intelligence components from Battalion through Theater level (Echelon Above Corps (EAC)), to include Joint Task Force (JTF) training events in the field and in educational institutions. WIM will be capable of providing indications and warning; collection; collection management; battle damage assessment; force projection; and intelligence analysis training support. The WIM software components will be a set of applications meeting the system requirements unique to the WIM/WARSIM 2000 system and software architecture. The WIM applications will reuse the WARSIM 2000 architectural components. Each of the BOS modules within WARSIM 2000 will be automated when used for training and training support in a specific BOS area (i.e. Intelligence, Air Defense, Fire Support, Command and Control, etc.- specific training). In that respect, WIM shall provide for the Intelligence BOS training and training support functionality.

WIM shall be designed and developed using high performance computer technology, advanced software engineering techniques, common tools, and training audience-validated algorithms and databases. This shall be accomplished via an integrated effort between the Govt. and the contractor. A key feature of WIM shall be the use of technology to reduce the Army's total overhead costs associated with supporting training. The system shall be designed to meet current and evolving architecture protocols, including the Department of Defense (DoD) High Level Architecture (HLA) for Modeling and Simulation (M&S), to facilitate linkages using WARSIM 2000 with evolving simulation systems, simulators, instrumented ranges and vehicles, databases, and live training events, as appropriate, without compromising intelligence system security. Linkage using WARSIM 2000 to other simulations, simulators, and systems through network protocols such as the Distributed Interactive Simulation (DIS) protocol shall be maintained through the current evolution of these protocols towards the HLA Run-Time Infrastructure (RTI)

and associated architecture standards. Additionally, DoD mandated software and hardware architecture constraints shall be imposed on WIM/WARSIM 2000 to ensure interoperability with existing and future real-world organizational equipment and other M&S systems, including the U.S. Army Technical Architecture (ATA) and the Technical Architecture Framework for Information Management (TAFIM).

WIM shall provide a training environment allowing MI units to focus their personnel and systems to assess threats across the operational continuum. WIM shall provide an environment that ensures training with scenarios that stress commanders and their MI staffs and units. WIM shall require MI staffs and units to assess the situation, determine courses of action, and plan and issue new orders in a timely manner while using their organizational equipment and procedures. WIM shall provide an intelligence training environment capable of representing all classes of signatures in battlespace and collection assets from across the operational continuum.

2.0 APPLICABLE DOCUMENTS

2.1 Government Documents

For guidance only.

2.1.1 Specifications, Standards, and Handbooks.

ARTEP 34-145-MTP (CATT 082.100.001)	Military Intelligence Battalion Staff (Division and Corps)
ARTEP 34-200-MTP (CATT 082.261.001)	Military Intelligence Brigade Staff, Corps, and Airborne Corps
ARTEP 34-296-10-MTP (CATT 082.112.001)	Military Intelligence Combat Service Support Units
ARTEP 34-196-30-MTP (CATT 082.144.001)	Headquarters Company, Military Intelligence Brigade or Battalion
FM 34-1 (CATT 083.088.001)	Intelligence and Electronic Warfare Operations
FM 34-2 (CATT 083.137.001)	Collection Management and Synchronization Planning
FM 34-3 (CATT 083.074.001)	Intelligence Analysis
FM 34-8 (CATT 083.204.001)	Combat Commander's Handbook on Intelligence
FM 34-10 (CATT 083.057.001)	Division Intelligence and Electronic Warfare Operations
FM 34-25 (CATT 083.301.001)	Corps Intelligence and Electronic Warfare Operations
FM 34-25-3	All-Source Analysis System and the Analysis and Control Element

FM 34-37 (CATT 083.196.001)	Echelons Above Corps (EAC) Intelligence and Electronic Warfare (IEW) Operations
FM 34-54 (CATT 083.265.001)	Battlefield Technical Intelligence
FM 34-80 (CATT 083.058.001)	Brigade and Battalion Intelligence and Electronic Warfare Operations
FM 34-130 (CATT 083.077.001)	Intelligence Preparation of the Battlefield (IPB)
FM 100-60	Armor- and Mechanized-Based Opposing Forces (OPFOR): Organization Guide
FM 100-61	Armor- and Mechanized-Based Opposing Forces (OPFOR): Operational Art
FM 100-62	Armor- and Mechanized-Based Opposing Forces (OPFOR): Tactics
FM 100-63 (CATT 083.107.001)	Infantry-Based Opposing Force (OPFOR): Organization Guide
FM 100-64	Infantry-Based Opposing Force (OPFOR): Operations and Tactics
FM 100-65	Opposing Force (OPFOR) Equipment Guide
FM 100-66	Opposing Force (OPFOR) in Operations Other Than War (OOTW): Organizations and Tactics
JCS Pub. No. 2-0	Doctrine for Joint Intelligence
JCS Pub. No. 2-1	Joint Intelligence Support to Military Operations
JCS Pub. No. 2-2	
JCS Pub. No. 2-3	
JCS Pub. No. 6-04	U.S. Message Text Formatting Program
TRADOC Pams 350-12-17	OPFOR Handbook Series (transitioned to Army FMs 100-60/68 - see above)

TC 34-10-20-1/2 (CATT 082.751.001)	Military Intelligence Collective Training Standards Document (Vol 1 and 2)
96-WARSIM-2-LMFS-00022	Warfighters' Simulation (WARSIM) 2000 System Specification

2.1.2 <u>Other Government Documents and Publications</u>

CATT 086.237.001	TACSIM Operations Manual (Vol I), Simulation Operations (D94W-94)
CATT 086.237.001	TACSIM Operations Manual (Vol II), Scenario Database Preparation (D95W-94)
CATT 086.237.001	TACSIM Troubleshooting Guide (D-91W-94)
CATT 086.237.001	TAARUS Users/Operators Manual (D-72W-93)
CATT 086.237.001	TALON/TAARUS to TACSIM Interface Control Document (D-90W-94)
CATT 086.237.001	System Administration Manual for TALON and TAARUS (D84W-94)
CATT 086.237.001	TALON Users/Operators Manual (D73W-93)
CATT 086.237.001	DMMAIN Users Manual (D98W-94)
CATT 086.237.001	TUP Users/Operators Manual (D96W-94)
CATT 086.237.001	TUP II Users/Operators Manual (D97W-94)
CATT 086.237.003	TACSIM Migration Strategy
CATT 086.237.011	TACSIM-ALSP Interface Control Document
CATT 086.237.002	TACSIM-NWARS Interface Control Document
CS-QPP-10 90-01 (CATT 086.237.004)	TACSIM Quality Program Plan for the Communications Support Processor

CS-CMP-10 90-01 (CATT 086.237.005)　　　TACSIM Configuration Management
　　　　　　　　　　　　　　　　　　　　　Plan for the Communications
　　　　　　　　　　　　　　　　　　　　　Support Processor

CSP-VDD-04 91-00 (CATT 086.237.006)　　　TACSIM Version Description
　　　　　　　　　　　　　　　　　　　　　Document for the Communications
　　　　　　　　　　　　　　　　　　　　　Support Processor, Vers. 3.3

CSP-FDD-04 91-05 (CATT 086.237.007)　　　TACSIM Functional Description for
　　　　　　　　　　　　　　　　　　　　　the Communications Support
　　　　　　　　　　　　　　　　　　　　　Processor, Vers. 3.3

CSP-ICD-05 91-05 (CATT 086.237.008)　　　TACSIM Interface Control
　　　　　　　　　　　　　　　　　　　　　Document for the Communications
　　　　　　　　　　　　　　　　　　　　　Support Processor

CSP-PS-05 91-01 (CATT 086.237.009)　　　　TACSIM Program Specification for
　　　　　　　　　　　　　　　　　　　　　the Communications Support
　　　　　　　　　　　　　　　　　　　　　Processor, Vers. 3.3

CSP-SSS-0491-06 (CATT 086.237.010)　　　　TACSIM System Specification for
　　　　　　　　　　　　　　　　　　　　　the Communications Support
　　　　　　　　　　　　　　　　　　　　　Processor, Vers. 3.3

3.0　SYSTEM REQUIREMENTS

3.1　WIM Requirements Overview

This section provides the basis of requirements for WIM development and pertains to the functionality that the system shall provide. Both general and intelligence-specific requirements are identified. WIM requirements are organized into eight functional areas as follows:

- Hardware/ Software
- Interfaces/ Networks
- Databases
- User Interface
- Simulation Management/ Control
- Scenario Preparation
- Simulation Execution
- After Action Review (AAR)

3.1.1　System Configuration

WIM shall be fielded in two operational configurations, Initial Operational Capability (IOC) and Full Operational Capability (FOC), which are consistent with the proposed fielding strategy for WARSIM 2000. The requirements in this SRD have been allocated into initial IOC and FOC development configurations. Where technology and time permit, limited functionality and implementation of the FOC requirements shall be incorporated into the IOC configuration design.

3.2 General Description

IOC

As a module of WARSIM 2000, WIM shall support training at sites fielded IAW the WARSIM 2000 fielding plan. WARSIM will allow the extension of training support and simulation control functions to locations other than the fixed sites that support regional training. Users of WIM shall train under the guidance of a senior trainer. The senior trainer may be the unit's higher commander, the unit's commander, the unit's intelligence officer, or an instructor at an institution. WARSIM 2000 will provide users with a complete training environment consisting of simulation control and execution, exercise control, system management, data retrieval and storage, scenario preparation, After Action Review (AAR), analysis, support functions, interfacing, and communications. The WIM system shall support the interoperation of WARSIM 2000 systems and system components with distributed computing resources to conduct intelligence training for battalion through theater level exercises with globally distributed training audiences.

WIM shall provide the following stated intelligence training and training support capabilities as an integrated system entity of the WARSIM 2000 system:

a. Hardware/ Software: WIM shall use the WARSIM 2000 hardware and software modules and interfaces that allow interoperability with (1) other simulators (such as the Joint Surveillance Target and Radar System (JSTARS) System Simulator (JSS) and Multiple Unmanned Aerial Vehicle (UAV) Simulation Environment (MUSE)); (2) system stimulators (such as the Intelligence and Electronic Warfare Tactical Proficiency Trainer (IEWTPT)); (3) simulation systems (such as the National Simulation (NATSIM) system); (4) live instrumented ranges and vehicles; and (5) current and evolving Intelligence and Electronic Warfare (IEW)/ Intelligence, Surveillance, and Reconnaissance (ISR)/ Information Warfare (IW) communications, systems, and networks. All computer systems developed shall utilize distributed computing techniques and be designed using the WARSIM 2000 architecture.

b. Interfaces/ Networks: WIM shall use the WARSIM 2000 interfaces and networks that allow for flexible and responsive communication gateways to organizational systems to include secure terrestrial and satellite media for transmitting and receiving all categories of voice, data, facsimile, imagery, and video between simulation elements, and to remote locations supporting a training exercise.

c. Databases: WIM shall use the databases developed for WARSIM 2000. WIM shall expand on these databases to include sensor models that portray the combined environment needed to support Army intelligence training events. At IOC, the sensor models to be portrayed shall include, as a minimum, those currently modeled in TACSIM. This may involve interfacing to the NATSIM system databases for incorporation of national sensor data. Databases shall be developed at security levels ranging from UNCLASSIFIED to TOP SECRET/ Sensitive Compartmented Information (TS/SCI). Development of databases shall be via an integrated effort with the Functional Description of the Battlespace (FDB) and the WARSIM 2000 Systems Engineering and Integration (SE&I) team efforts.

d. User Interface: User interfaces consist of technical control systems and workstations for use by senior trainers, simulation controllers, sensor collection managers, simulation analysts, and role players (including friendly and opposing forces). The user interfaces for WARSIM 2000 will be actual training audience organizational equipment, and will allow for training in which the simulation is transparent. WIM will extend the WARSIM

2000 linkage to organizational equipment to include intelligence collection, tasking, analysis, and dissemination systems (such as the All Source Analysis System (ASAS)).

e. Simulation Management/Control: WIM shall use the WARSIM 2000 simulation management and control capabilities to seamlessly prepare, execute, and review simulation exercises while at the same time being "transparent" to the training audience. Again, the simulation management and control capabilities shall be expanded to include intelligence-specific requirements.

f. Scenario Preparation: WIM shall use the WARSIM 2000 scenario preparation system for generation, mission rehearsal, and modification of scenarios. WARSIM 2000 will allow users to rapidly build and change scenarios. Building a scenario consists of defining the units and organizations involved in the exercise to include their initial level of training and combat effectiveness, equipment, locations, strengths, movement, combat posture, deploy status, the terrain/ weather/ environment conditions and boundaries of the exercise, obstacles, and the resources available to the units and organizations. WIM shall expand upon the parameters of objects within WARSIM 2000 to include sufficient detail for providing accurate Intelligence Preparation of the Battlefield (IPB). Typical inputs to the intelligence scenario preparation capability include information provided by the FDB, the DoD Modeling and Simulation Resource Repository (MSRR), the Defense Intelligence Agency's (DIA's) Multi-Spectral Force Deployment (MSFD), and the Military Intelligence Database (MIDB) databases. This may require WIM to utilize JSIMS' Joint Conceptual Model of the Mission Space (JCMMS) or DIA's Defense Intelligence Mission Space Model (DIMSM), if necessary for joint intelligence capability. The scenario preparation data used for WIM shall also contain sufficient detail to provide a generalized baseline for driving the more detailed intelligence scenario preparation data required by the IEWTPT Scenario Generation Facility (SGF).

g. Simulation Execution: WIM shall use the WARSIM 2000 simulation execution software and hardware to provide training for intelligence commanders and staff real-time using their organizational equipment and processes.

h. After Action Review (AAR): WIM shall use the WARSIM 2000 AAR system to prepare and conduct both daily and end of exercise AARs for the training event adequate for the intelligence training community. This may require an additional WARSIM 2000 AAR system dedicated to WIM to accommodate security and specific intelligence training requirements. The AAR capability required for WIM shall expand on that currently available in the TACSIM AAR User System (TAARUS), to include: archival of all data and reports for subsequent retrieval and review (ad-hoc and pre-defined queries), rapid query and multiple sort capability of (at a minimum) unit information, geographic location, headquarters information, targets/ sensors, and receiver addresses, and allow for dynamic update of scenario/ AAR databases during simulation execution.

FOC

At FOC, force structures to be simulated shall also be expanded to include gray and clandestine forces in the simulation exercise. WIM shall also allow for scenario input of possible future intelligence organizational structures and doctrine which can be created or derived from various real world threat information. In addition, the WIM system shall be optionally expandable to support Joint Army, Air Force, Navy, Marine Corps, and Allied Forces intelligence training events. This includes using the joint Common Operational Environment (COE) and expanding sensor models (not currently in TACSIM) to include outside Army organizational joint tactical and national systems and equipment. The scenario preparation capability and AAR reports and

products shall be optionally expandable to provide scenario preparation and training review information to the joint training community (such as a JTF)**.**

3.3 Intelligence BOS (Sources, Collection, And Reporting)

IOC

The intelligence BOS requirements are specifically associated with collection management, intelligence sources, collection systems, and subsequent intelligence product dissemination. WIM shall portray a wide variety of threat systems, doctrine, organizations, and activities at the classification level appropriate to the training event. WIM must be capable of representing full-dimensional operations. Threats shall span across the full range of possible wartime operations and Military Operations Other Than War (MOOTW). WIM shall provide for intelligence collection against and by OPFOR and covert organizations. The system shall accept collection missions and provide the data output that is appropriate to the collection system tasked or provide the data required to stimulate a simulator (e.g. IEWTPT). The system shall provide the raw data that would normally go from the collection system (HUMINT, SIGINT, IMINT, MASINT) to the appropriate activity (such as S-2, G-2, or J-2) for aggregation and analysis. Example data include target location data, intelligence reports (such as Size, Activity, Location, Unit, Time, and Equipment (SALUTE) and Situation Reports (SITREPs)), Moving Target Indicators (MTIs), Fixed Target Indicators (FTIs), Synthetic Aperture Radar (SAR)/ radar mappings, secondary imagery, results of tactical interrogations, communications intercept (voice and data), audio/ video signatures, and emulation of emitter output (e.g. RF) data. In the event that collection from a superior or subordinate echelon is not available, WIM shall provide data suitable for a fusion system (e.g., All Source Analysis System (ASAS)) or pre-processor (such as the Common Ground Station (CGS)) as it would arrive from ground, air, maritime, EAC or allied assets.

WIM shall be an integrated module of the WARSIM 2000 system to meet the training requirements for the intelligence training community. WIM must accurately reflect the real-world operational constraints of intelligence operations in multi-echelon force projection environment (direct, project, and protect the force, gain information dominance, and shape the battlespace). WIM shall facilitate the effective vertical training of MI assets (e.g., feed IEWTPT architecture) and the horizontal integration of the Intelligence BOS with the other BOS's.

Peacetime threat scenarios shall be modeled in WARSIM 2000 to provide intelligence simulation support required for Military Operations Other than War (MOOTW), such as disaster relief, military assistance to civil disturbances, non-combatant evacuation, counter drug and counter terrorism, and peacekeeping/ peacemaking operations.

FOC

WIM shall expand intelligence collection tasking to include collection against and by clandestine or gray organizations.

3.3.1 Joint Operations

IOC

WIM shall portray the effects of ground, ocean, air and space intelligence sources, and the effects of their collection and reporting operations on Army operations.

FOC

Collection and reporting operations shall be optionally expandable to include joint and combined intelligence sources. WIM shall portray those actions of the other services that affect the planning and execution of Army operations, such as air reconnaissance and the operation of intelligence collection assets from other services that have a critical impact on the planning and execution of Army operations. WIM shall provide simulation of political, economic, and infrastructure information.

3.3.2 National Assets

IOC

WIM shall portray the products that national assets provide (National sources, collection, and reporting systems) at the appropriate echelon. This shall include typical national Imagery Intelligence (IMINT), Signals Intelligence (SIGINT), Measurement and Signals Intelligence (MASINT), and Human Intelligence (HUMINT) reports and data. As a part of the integrated JSIMS effort, WIM shall use the WARSIM 2000 interface with the National Simulation (NATSIM) system for appropriate portrayal of national assets at the TS/SCI level and shall not duplicate effort unless specifically needed for unclassified or collateral security levels. IOC portrayal of National assets is limited to the current TACSIM national air and space sensor models.

FOC

National assets and models shall be optionally expandable to include joint forces sensors and systems. This shall include national OPFOR and gray/clandestine models.

3.3.3 Allied/Friendly (BLUFOR) and Neutral (Gray/Clandestine) Forces

IOC

WIM shall portray the products that allied/friendly (Blue) forces provide at the appropriate echelon. Typical products to be portrayed include imagery from allied air-breather and commercial satellite collection systems.

FOC

WIM shall expand the force structures to include neutral (Gray) or Clandestine forces. Neutral forces shall include non-aligned forces, non-combatant groups, and forces of unidentified and changing alliances.

3.3.4 Opposing Forces (OPFOR)

IOC

WIM shall model OPFOR intelligence mechanisms and sensors as they would be doctrinally portrayed in the simulation environment (i.e. an artificially intelligent "thinking" or live OPFOR). The level of intelligence should be sufficient to drive the OPFOR intelligence for BCTP Division Warfighters through theater level exercises.

FOC

No additional requirements.

3.3.5 Reports

IOC

WIM shall obtain information from WARSIM 2000 that provides feedback to the training unit by automatic generation of intelligence collection, assessment, and dissemination reports. These reports shall be formatted in a doctrinally correct fashion (such as U.S. Message Text Format (USMTF), U.S. Signals Intelligence Directives (USSID), Army Command and Control System (ACCS) Message Catalog, IEW Character-Oriented Message Catalog (IEWCOMCAT), and Variable Message Format (VMF)) and occur in a time-appropriate manner. Report formats shall be rapidly changed by support personnel during an operation without loss of data flow. The reports shall not reveal all of ground truth but reflect only information that the simulated unit would reasonably know given its status, time removed from the reported incident, collection requirements, and its deployed intelligence assets.

FOC

Reporting formats and methods shall be expanded to allow for training of joint organizational forces.

3.4 Training Environment

IOC

WARSIM 2000 shall provide WIM an integrated training environment that allows unit commanders and MI units to focus their intelligence analysts and collection systems in assessing threats across the operational continuum. The integrated intelligence training environment shall address scenario portrayal at the appropriate individual weapon platform, surrounding unit simulation, generation and control of simulated mistakes, multi-echelon participation, and general simulation effects including time, terrain, weather, and communications. WIM shall simulate intelligence that presents problems that stress and stimulate commanders and their staffs to assess the situation, determine courses of action, synchronize collection assets, plan and issue new orders in a timely manner, and execute collection and analytic tasks while using their organizational equipment and procedures.

FOC

No additional requirements.

3.4.1 Scenarios

IOC

WARSIM 2000 will portray events from scenarios based on any point in the operational continuum. This will include but not be limited to scenarios for Europe, Southwest Asia, Southeast Asia and Korea. As an integrated part of WARSIM 2000, WIM shall use all of the databases (structure, architecture, and data) included in WARSIM 2000. WIM shall use these databases to meet scenario preparation requirements in accordance with the Intelligence Preparation of the Battlefield (IPB) and user and joint training scenario preparation requirements at the time of development. WIM shall use the WARSIM 2000 services to use, manipulate, input data to, and extract data from a variety of databases, networks, and systems to include U.S. Army organizational systems, Department of Defense Intelligence Information System (DODIIS), Intelink, Joint Deployable Intelligence Support System (JDISS), Theater Battle Management Core System (TBMCS), and other U.S. or allied intelligence community networks used by Army intelligence units. Standard U.S. Army management information systems using standard COTS

or GOTS database management systems which are compliant with the WARSIM 2000 architecture.

FOC

The WARSIM 2000 FOC scenarios, expanded to include MOOTW and peacetime operations in Europe, Southwest Asia, Southeast Asia, Korea, Central and South America and Africa, shall be utilized to provide appropriate intelligence training in these arenas.

3.4.2   Level of Detail

IOC

WIM shall portray a level of detail which captures the signature of individual entities in engagements, battles and campaigns as appropriate to the collection systems. For example, this will require WARSIM 2000 and other models in the simulation federation to represent doctrinally correct breakdowns of units for the purpose of displaying Fixed Target Indicator (FTI), Moving Target Indicator (MTI), Synthetic Aperture Radar (SAR), or other signatures in WIM.   In addition, aggregate signatures of these units shall be portrayed in combination with other units to portray the overall intelligence perspective of the battlefield. All systems shall be portrayed using performance data appropriate to the level of classification of the exercise.

FOC

No additional requirements.

3.4.3   Surrounding Units

IOC

WARSIM 2000 will portray dynamic scenario and event-dependent intelligence and reports concerning the activities of simulated units as well as their requests for information and resources from the training units.   The surrounding units may be live, virtual, or simulated with no perceived difference in capability or resources. WIM will use this information for intelligence training purposes.

FOC

No additional requirements.

3.4.4   Simulated Mistakes

IOC

WARSIM 2000 will provide the models for mistake generation and tracking. These will include mistakes in action and mistakes in reporting. WIM shall use these models to cause simulated sources, collection and dissemination systems to "make mistakes" based on a predetermined set of variables and algorithms.   These mistakes shall be consistent with the known variability of accuracy of modeled intelligence systems. The simulation shall allow the senior trainer to cause a

simulated source/system to make specific mistakes during the exercise. The simulation shall allow the senior trainer to easily adjust the severity and frequency of simulated mistakes during an exercise including the capability to turn off the mistakes. Along with reports that are accurate but incomplete, other reports shall contain information that is different from ground truth. These mistaken reports shall not change ground truth. The simulation shall provide the correct information if challenged for confirmation. The senior trainer and the WARSIM 2000 AAR system shall have access to both ground truth and mistakes for training awareness of mistakes in actual exercise outcome. The simulation shall also have the capability to exclude mistakes and random events if it is deemed necessary to repeat a particular scenario with the same outcome.

FOC

No additional requirements.

3.4.5 Multi-Echelon Input and Output

IOC

WIM shall accommodate training exercises where different echelons of training audiences (EAC, corps, division, brigade, battalion) are simultaneously interacting within the simulation. Intelligence units using the simulation shall issue orders and instructions to the simulation through mission equipment, while receiving reports and data from all sources. The simulation shall receive and present its information in the format, mode, and level of detail appropriate to the training unit.

FOC

Multi-echelon exercises shall be optionally expandable to include joint theater level exercises in which training audiences outside of the U.S. Army can be trained.

3.4.6 Synthetic Environment

IOC

The synthetic environment, including both terrain and weather elements, shall be provided by WARSIM 2000. WIM shall incorporate this environment for intelligence purposes without duplicating development of the synthetic environment. The simulation shall use the appropriate level of resolution from the WARSIM 2000 environment such that tactical considerations of terrain analysis of man-made or natural occurrences (e.g., minefields, the obstacle effects of rivers, hydrography, and weather) are considered during the IPB. Tactical considerations shall include but not be limited to the following areas: the impact of line-of-sight, electromagnetic spectrum considerations of concealment, thermal, optical and radar visibility, and signal site emplacement between potential collectors and targets, whether they be sensors or weapon systems, air, ship or ground mounted. The outcomes and collection of simulated events on the battlefield shall be represented in WIM with respect to changes in the weather as it affects terrain. WIM shall be capable of using DMA-produced digitized terrain, LANDSAT and SPOT imagery, and data of various scales provided in standard media formats which are consistent with WARSIM 2000 (e.g. WGS-84 datum, etc.).

FOC

Environment shall include the ability to portray the dynamic effects of units on terrain (bomb craters, battle damage on roads, etc.) as well as the dynamic effects of terrain on units (flooded roads not accessible, etc.). This impact shall include, but is not limited to, impact on line-of-

sight, cognitive processes, analysis capability, electromagnetic spectrum considerations of concealment, thermal, optical and radar visibility, and signal site emplacement between potential collectors and targets, whether they be sensors or weapon systems, air, ship or ground mounted.

3.4.7 Time

IOC

Time management shall be provided by the WARSIM 2000 architecture. Using the WARSIM 2000 time management scheme, WIM shall be required to provide the ability to run faster than real time (up to 10 times faster) to a pre-defined point in time or an event, requiring minimal input and providing summarized output. WIM shall utilize the WARSIM 2000 capability to allow users to 'age' the simulation to accommodate an intelligence training scenario that describes actions in the midst of a campaign. WIM shall also use the WARSIM 2000 capabilities to replay or restart the training exercise as necessary at given times during an exercise, as replay or restart becomes necessary for training.

FOC

No additional requirements.

3.4.8 Weather

IOC

The weather simulation within WIM shall again be provided by the WARSIM 2000 environment (see 3.4.6 above). The WIM system shall be capable of using all WARSIM 2000 provided weather information before, during, and after a simulation exercise. The weather data shall be used within WIM for the purpose of accurately portraying the impact that weather elements have on combat and intelligence operations (space, air, sea, and ground). These weather elements shall be changeable as often as hourly. Weather within the WARSIM 2000 architecture shall be used by WIM to cause impact to the mobility, visibility, target sensors and acquisition, electronic signatures, electromagnetic environmental effects (E3), and cognitive processes of the simulated units. The impacts to units shall be modeled down to the platform/ entity level.

FOC

Weather effects and data to be included within WARSIM 2000 include, but are not limited to, barometric pressure, humidity, variable weather patterns over geographic areas (tropical to arctic), vertical profile of wind speed, direction, and temperature to 70,000 feet, and impact of Nuclear, Biological, Chemical (NBC) weapons. WIM will allow for impact of any weather elements introduced by WARSIM 2000 in FOC on intelligence collection, analysis, and dissemination including dynamic changes in weather during the simulation.

3.4.9 Night and Reduced Visibility

IOC

WARSIM 2000 will portray the effects of night and reduced visibility conditions on operations. Night and reduced visibility shall affect WIM sensor and target acquisition signatures, communications signatures, and line-of-sight (LOS) visibility, especially for sensors which operate outside the visible light range (i.e. infrared, ultraviolet, etc.). Reduced visibility includes clouds, rain, smoke, dust, fog, and precipitation which are obscurants to sensor views.

FOC

Dynamic changes in weather or smoke, dust, clouds, etc. will be portrayed in WARSIM 2000. Thus, intelligence sensor collection of a particular battlefield area may change dynamically as the simulation progresses.

3.4.10 Nuclear, Biological, and Chemical (NBC)

IOC

WARSIM 2000 will portray the initial and residual effects of NBC weapons employment on the battlefield. WIM shall show the effect of WARSIM 2000-modeled projected, mobile, and fixed smoke, chemical, biological, and flame weapons on collection, analysis and distribution of intelligence information. In WARSIM 2000, NBC effects will be dynamically updated during the exercise due to weather patterns (wind, air) and dispersion characteristics. As WARSIM 2000 dynamically changes the NBC characteristics on the battlefield, WIM shall use the updated information to update its effect on sensor collection, intelligence distribution, and cognitive processes of intelligence units, as applicable.

FOC

No additional requirements.

3.4.11 Behavior

IOC

Using the behavior models of WARSIM 2000, WIM shall properly represent the effects of unit behavior on intelligence forces and their commanders to a level commensurate with the purposes of the exercise. Where appropriate, this ability shall include the ability to "make mistakes" and the degradation of unit and human effectiveness due to conditions eperienced during military operations. The latter shall include factors such as combat experience, level of training, fatigue, social/religious/moral/environmental conditions (e.g. climate, weather, presence of NBC contaminants), nutrition, sleep deprivation, and political influences.

FOC

Behavior models for intelligence units shall be expanded to support MOOTW.

3.4.12 Signal

IOC

Communications shall be degraded as a function of extended ranges, equipment malfunctions, weather, time of day, network overload based on combat activities and equipment destruction by hostile and fratricide acts. WIM shall interact via WARSIM 2000 with (1) other connected communications simulations (e.g., Joint Electronic Combat Electronic Warfare Simulation (JECEWSI) and Joint Command and Control Warfare Simulation System (JCCWSS)); (2) simulators; and (3) communication tools (e.g. ISYSCON) for synchronization of communications degradation levels. Communications shall be degraded regardless of the physical locations of the training audience during an exercise and shall be modeled based upon the locations of the units within the simulation.

FOC

No additional requirements.

3.4.13   Electronic and Information Warfare

IOC

WIM shall use the WARSIM 2000 effects of electronic and information warfare on friendly and threat organizations' ability to function and carry out missions on the battlefield. This includes, but is not limited to, effects on friendly and enemy automated systems, communications, radar and intelligence operations.

FOC

Effects of electronic and information warfare shall be extended to gray and clandestine organizations.

3.4.14   Fire Support Effects

IOC

WIM shall simulate intelligence collection on the differing effects of fire support systems against targets in varying environments. The effects of precision munitions against specific targets shall be reflected in the portrayal of the targeted unit's capabilities and characteristics, and leave an enduring impression on the battlefield, e.g., a unit that loses its accompanying radars due to damage shall show a change in its radar emissions and the terrain shall reflect the remains of the destroyed system.

FOC

No additional requirements.

3.5 Computer-Based Simulation Module

IOC

WIM shall be a computer-based simulation module consisting of, or using:

- Software modules for integrating WIM with WARSIM 2000.

- Technical control systems/workstations for use by personnel in an exercise support function, e.g. simulation controllers, senior trainers, AAR analysts, OPFOR controllers, etc.

- Flexible and responsive communications gateways to organizational systems including secure terrestrial and satellite media for transmitting appropriate voice, data, facsimile, and video between simulation elements, and to remote locations involved in the training exercise.

- Software and hardware architecture that is integrated with the WARSIM 2000 software and hardware architecture. WIM shall be capable of using all of the existing WARSIM 2000 layered architecture levels and interfaces.

WIM shall also be designed so that it can provide for the separation of parameters and data from the software. Simulation development to meet the communication objectives shall consider simulation communications protocols (e.g., DIS) as well as the use of commercial or government-owned database management systems.

FOC

Any additional hardware or software added in the WARSIM 2000 system for FOC shall be integrated into WIM.

3.5.1 Module Parameters

IOC

WIM shall be designed so that all data, including parameters for system performance, rules for expert systems, and addresses for network nodes are not part of the simulation software itself. WIM shall be data driven and shall not contain hard-coded sensor performance parameters in the system software. WIM shall allow training support personnel to make changes in WARSIM 2000 scenarios, input parameters, rules, message formats, network structures, etc., during an exercise with minimal disruption to the exercise. WIM shall permit modification of sensor parameters to allow for technological advancement.

FOC

No additional requirements.

3.5.2 Linkages

IOC

WARSIM 2000 will link with simulators such as a Joint Surveillance Target Attack Radar System (JSTARS) System Simulator (JSS), IEWTPT, Multiple Unmanned Aerial Vehicle (UAV) Simulation Environment (MUSE) or similar simulator, DIS-compliant prototype simulators, and instrumented ranges and vehicles. The simulators shall operate as units on specified portions of the battlefield. The link shall be such that WIM operators can allow units of simulators to enter and leave the simulation environment without disrupting the training exercise.

WIM shall be designed using the WARSIM 2000 architecture so that when other models that have competing or complementary functions, for example, airspace management, a decision can be made to either 'turn off' WIM's airspace function and allow the other model to assume the function for both, or for the models to co-exist.

FOC

WARSIM 2000 will link to emerging DIS and/or DoD HLA-compliant simulation models of other services, such as the National Air and Space Model (NASM), the JSIMS Maritime System, and NATSIM. WIM shall use information from these systems to provide appropriate intelligence capability to the commanders and staff being trained. The ability to send and receive intelligence information between WIM and the linked systems and simulations shall be modeled.

3.5.3 Interfaces

IOC

WARSIM 2000 shall allow intelligence unit trainees to use their organizational systems for all incoming and outgoing communications and data transfer with WIM. WIM shall provide the capability to interoperate with the organizational systems of Army, other services, and combined forces, as necessary, for the purposes of intelligence training. WIM shall be completely integrated with each component of the organizational systems from tactical through the operational level. WIM shall interface to current and future intelligence systems via an integrated effort with WARSIM 2000. Where feasible, WIM shall use the Modular Reconfigurable C4I Interface (MRCI) to interface with C4I systems. All interfaces to C4I systems shall be compatible with the Defense Information Infrastructure Common Operating Environment (DII COE). WIM shall be able to send and receive information in the appropriate format or display mode via the media or means employed by the appropriate system (i.e., UAV output should be in video form; messages from a SIGINT collection shall be both electronic text data transmission and discrete RF emissions (voice and foreign language transmission broadcast); JSTARS output should be in MTI, SAR, etc.; TENCAP message formats should include TADIL-A,B,J and TADIXS, etc.).

FOC

Intelligence services and communications interface shall be expanded to include Joint service training requirements. WIM will optionally allow for interoperation with (and reuse from) the evolving Synthetic Theater of War (STOW), Warfighter XXI, and Force XXI electronic warfare and intelligence systems through JSIMS, so that WIM can use current and future tactical exploitations and intelligence preprocessors.

3.5.4   Communications

IOC

WARSIM 2000 will provide several types of secure terrestrial and satellite communications support for training exercises. WIM shall expand upon WARSIM 2000 communications network requirements, to include intelligence networks such as the Department of Defense Intelligence Information System (DODIIS), Defense Secure Network (DSNET), Defense Simulation Internet (DSI), and Distributed Internet Simulation Network (DISN). WIM shall provide, as required, DIA-approved interfaces to ensure security integrity is maintained between the simulation and user processor equipment (e.g. Communications Support Processor (CSP)).

FOC

No additional requirements.

3.5.5   Databases

IOC

WARSIM 2000 database structure and components will be used by WIM.   This includes information in the Functional Description of the Battlespace (FDB), as well as the WARSIM 2000 database architecture. This includes usage, manipulation, input, and extraction of data from a variety of databases to include Army organizational system databases, DODIIS databases, other US or allied intelligence community databases used by Army intelligence and standard army management information systems using standard Commercial or Government Off-the Shelf database management systems.

WIM data manipulation shall include DIA-approved means of changing classification. A way to downgrade classification levels of data information shall be included in WIM.

FOC

Changes in the WARSIM 2000 or FDB database structure during FOC development shall be accommodated by WIM.

3.5.6 Archiving

IOC

The archiving functionality for WIM will be integrated with WARSIM 2000.   This includes all After-Action Review (AAR) intelligence information and analysis needed to perform AARs for intelligence personnel. In addition to the standard data set to be archived, the system shall tailor data to be archived to meet an intelligence unit's specific training objectives. This information includes the scenario databases and any other information available to support the AAR requested by the unit or the Center for Army Lessons Learned (CALL), and the Battle Command Training Program (BCTP). Data shall be archived with respect to time in order to facilitate examination of the dynamics of intelligence collection activities during the battle. WIM shall also archive data needed for validation, verification, accreditation, certification, test, and evaluation.

FOC

No additional requirements.

3.5.7 Security

3.5.7.1 Levels

IOC

WIM shall be capable of operating and producing reports in both classified and unclassified modes. WIM shall also accommodate WARSIM 2000 security requirements for training with classified data in classified scenarios. This includes the ability to transmit classified data over the distributed network, use classified data as a part of the model parameters in a classified database, media storage, purging of classified data from systems, and denial of unauthorized users (operators, maintainers, testers, etc.). Required classification levels for WIM shall include UNCLASSIFIED through TOP SECRET/ Sensitive Compartmented Information (TS/SCI) for intelligence models and reports.

FOC

WIM shall integrate with the ongoing efforts of the emerging DIS, HLA, JSIMS, or WARSIM 2000 efforts to incorporate Multi-Level Security (MLS) as a part of the simulation system. As newer security technologies become available, they shall be incorporated into WIM.

3.5.7.2 System Integrity

IOC

WIM shall incorporate protection against unauthorized access to the simulation system and theft, corruption, or destruction of software or data due to computer viruses.

FOC

No additional requirements.

3.5.8 AAR Tools

IOC

In addition to the standard WARSIM 2000 AAR tools, WIM shall include intelligence unique tools to facilitate AAR for intelligence personnel. These tools should include, but are not limited to, displays of intelligence collection coverage at any point in the simulation, the ability to display battlefield as sensed by the modeled collection systems compared to ground truth, and displays of errors or mistakes induced by the system.

FOC

No additional requirements.

3.6 Development Technology And Techniques

IOC

Development technology and techniques shall comply with DoD HLA development requirements and be consistent with WARSIM 2000 development technologies. The design of WIM shall require implementation of technology and techniques that comply with defined software standards and protocols. The design objective for WIM is that it can be changed and improved without affecting the design of WARSIM 2000 or the interfaces to real-world organizational equipment used with WARSIM 2000 for training.

FOC

No additional requirements.

3.6.1 Open Architecture

IOC

The WIM architecture shall be integrated with the WARSIM 2000 open architecture. As such, WIM shall comply with DoD validated and emerging open architecture standards, such as DoD HLA, ATA, and TAFIM.

FOC

No additional requirements.

3.6.2 Hardware Platforms

IOC

The WIM computational system shall consist of all computer systems and system software required to meet the development and performance requirements for all portions of this specification, and be integrated with WARSIM 2000. The computer system(s) shall consist of commercially available, general purpose, digital computers, peripherals and interface equipment that are currently in production at the time of delivery.

FOC

No additional requirements.

3.6.3   Modular Software

IOC

The Domain Specific Software Architecture shall conform to the DoD Technical Architecture Framework for Information Management (TAFIM), Volume 2, guidance for a layered open systems software architecture. The Application Software Entity layer of the architecture shall be developed using object oriented methodologies.

Standards and protocols shall be designed such that distinct software modules can have individual configuration control. Each software module shall be designed so that it can be changed and improved without affecting the design of the other software modules comprising the WIM simulation system.   Model parameters shall be stored as data and not hard-coded into the software. WIM shall allow training support personnel to make changes in scenarios, input parameters, rules, and network structures during an exercise with minimal disruption to the exercise.

FOC

No additional requirements.

3.6.4   Software Standards

IOC

The software comprising WIM shall be documented to support a thorough process of maintenance, enhancement, verification, validation, and accreditation (VV&A).

FOC

No additional requirements.

3.6.5   Man-Machine Interface

IOC

All training-unit interaction with WIM shall be via WARSIM 2000 using organizational command and control systems which have their own inherent training requirement. WIM shall require the training unit to perform all of the tasks that it would have to perform in combat as realistically as possible. Available automated functions shall be on/off switchable to customize the functions trained to the goals of the training unit.

FOC

No additional requirements.

3.6.6   Standardization, Interoperability and Commonalty

IOC

WIM shall be employed in support of exercises that train units from other services as well as other nations. As such, it shall use DoD interoperability standards for training simulations to enable it to link in a seamless (no man-in-the-loop) fashion with other services' simulations/simulators and communication systems.

FOC

No additional requirements.

3.7 Logistical Support

IOC

Logistical support of WIM shall be based on a government-owned contractor-supported system. The government shall own necessary hardware, have all proprietary rights to the developmental hardware and software components, and full license rights to the non-developmental software components of WIM. Life-Cycle Contractor Support (LCCS) for WIM shall include providing total support for the maintenance and support of the Government-owned contractor-operated computer hardware and software at all times with no dependence on any Government resources to maintain and support the system.

FOC

WIM shall have sufficient computers and ancillary equipment to support training at all validated sites required for WARSIM 2000 by FOC.

3.7.1   Reliability and Maintainability

IOC

The reliability of WIM shall be such that it does not degrade the WARSIM 2000 system reliability. The WIM/WARSIM 2000 system shall have a ninety-five percent probability of completing the average training mission duration of 78 hours without experiencing any system abort.   The WIM/WARSIM 2000 system shall have a ninety percent probability of completing the average training mission of 78 hours without experiencing any essential function failure. The definition of system abort and essential function failure shall be consistent with the implementation of the WARSIM 2000 system, and shall be agreed upon by both the Government and the contractor. The overall Mean Time To Repair (MTTR) for the WIM system shall be less than one hour. The administrative logistics down time shall not exceed 30 minutes.

FOC

No additional requirements.

3.7.1.1   Exercise Duration

IOC

WIM shall support training exercises whose duration ranges from 1 to 30 days, 24 hours a day. WIM software shall also be developed in such a way as to accommodate exercises of longer or shorter duration with varying simulated force sizes as user requirements evolve. The system shall meet or exceed WARSIM 2000 reliability and maintainability objectives.

FOC

No additional requirements.

3.7.1.2 Post-development Software Support

IOC

A system for post-development software support (PDSS) shall exist to support the correction of errors in the software design and implementation.

3.7.1.3 Manpower Support

IOC

The WIM system shall mirror the WARSIM 2000 system in role-player reductions. The goal is for WIM to reduce the technical staff support effort to fewer than two-thirds of the staff effort it takes to support the current TACSIM simulation in a large Corps-level exercise (e.g. Warfighter) by IOC. This goal includes scenario preparation, oversight during training exercises, and AAR support, as a whole.

FOC

Role-player and technical support staff reductions shall be reduced further to fewer than one third of the Corps-level TACSIM staff effort.

3.7.1.4 Training

IOC

WIM must not require any special training of the training unit personnel for its operation.

FOC

No additional requirements.

3.7.2 Environment Support

IOC

The computers and ancillary equipment used to run WIM shall operate from facilities that are environmentally controlled to system manufacturers' specifications.

FOC

No additional requirements.

3.7.3 Magnitude of Support

IOC

WIM will be capable of supporting the intelligence requirements of large scale exercises (e.g. Ulchi Focus Lens and Atlantic Resolve), and exercises in which the training audience is comprised of only intelligence personnel using intelligence unit Table of Organization and Equipment (TO&E) (e.g. 513th MI BDE Bold Knight exercise). The computer hardware and software for WIM will be integrated with the WARSIM 2000 system. The computers supporting a single WARSIM 2000 fixed site shall be flexible enough to support ten (10) independent, low-echelon, brigade or battalion-level exercises simultaneously or a single division, corps, or theater exercise comprising five (5) echelons of command. WIM shall be capable of providing intelligence information regardless of the size or number of exercises required for WARSIM 2000.

FOC

Both large and small exercises shall be expanded to include the training of joint intelligence commanders, staff and personnel.

3.7.4 Schedule Considerations

IOC/FOC

WIM IOC and FOC shall be consistent with the WARSIM 2000 IOC and FOC requirements.

4.0 GLOSSARY OF ACRONYMS

Acronym	Definition
AAR	After Action Review
ACCS	Army Command and Control System
ASAS	All Source Analysis System
ATA	U.S. Army Technical Architecture
BCTP	Battle Command Training Program
BDE	Brigade
BE	Basic Encyclopedia
BLUFOR	Blue (Friendly) Forces
BN	Battalion
BOS	Battlefield Operating Systems
C4I	Command, Control, Communications, Computers, and Intelligence
CALL	Center for Army Lessons Learned
CATT	Combined Arms Tactical Trainer
CGS	Common Ground Station
CI	Counter Intelligence
COE	Common Operational Environment
COMCAT	Character-Oriented Message Catalog
COMINT	Communications Intelligence

COTS	Commercial-Off-the-Shelf
CSP	Communications Support Processor
DA	Developing Agent
DIA	Defense Intelligence Agency
DII	Defense Information Infrastructure
DIMSM	Defense Intelligence Mission Space Model
DIS	Distributed Interactive Simulation
DISN	Distributed Internet Simulation Network
DMA	Defense Mapping Agency
DoD	Department of Defense
DODIIS	Department of Defense Intelligence Information System
DSI	Defense Simulation Internet
DSNET	Defense Secure Network
E3	Electromagnetic Environmental Effects
EAC	Echelon Above Corps
ELINT	Electronics Intelligence
EMD	Engineering and Manufacturing Development
EW	Electronic Warfare
FDB	Functional Description of the Battlespace
FM	Field Manual
FOC	Final Operational Capability
FTI	Fixed Target Indicator
GCCS	Global Command and Control System
GOTS	Government-off-the-Shelf
HLA	High Level Architecture
HUMINT	Human Intelligence
IAW	In Accordance With
IEW	Intelligence and Electronic Warfare
IEWTPT	Intelligence and Electronic Warfare Tactical Proficiency Trainer
IMINT	Imagery Intelligence
IOC	Initial Operational Capability
IPB	Intelligence Preparation of the Battlefield
ISR	Intelligence, Surveillance, and Reconnaissance
ISYSCON	Integrated System Control
IW	Information Warfare
JCCWSS	Joint Command and Control Warfare Simulation System
JCMMS	Joint Conceptual Model of the Mission Space
JCMT	Joint Collection Management Tools
JCS	Joint Chiefs of Staff
JDISS	Joint Deployable Intelligence Support System
JECEWSI	Joint Electronic Combat Electronic Warfare Simulation
JPO	Joint Program Office
JSIMS	Joint Simulation System
JSS	JSTARS System Simulator
JSTARS	Joint Surveillance Target Attack Radar System
JTF	Joint Task Force
LCCS	Life-Cycle Contractor Support
LOS	Line of Sight
M&S	Modeling and Simulation
MASINT	Measurement and Signals Intelligence
MI	Military Intelligence
MIDB	Military Intelligence Database
MLS	Multi-Level Security
MNS	Mission Needs Statement

MOOTW	Military Operations Other Than War
MRCI	Modular Reconfigurable C4I Interface
MSFD	Multi-Spectral Force Deployment
MSRR	Modeling and Simulation Resource Repository
MTI	Moving Target Indicator
MTP	Mission Training Plan
MTTR	Mean Time To Repair
MUSE	Multiple UAV Simulation Environment
NASM	National Air and Space Model
NATSIM	National Simulation
NBC	Nuclear, Biological, and Chemical
NWARS	National Wargaming System
OOTW	Operations Other Than War
OPFOR	Opposing Forces
ORD	Operational Requirements Document
PDSS	Post-Development Software Support
RF	Radio Frequency
RTI	Run-Time Infrastructure
SALUTE	Size, Activity, Location, Unit, Time, Equipment (report)
SAR	Synthetic Aperture Radar
SE&I	Systems Engineering and Integration
SGF	Scenario Generation Facility
SID	Secondary Imagery Dissemination
SIGINT	Signals Intelligence
SITREP	Situation Report
SRD	System Requirements Document
STOW	Synthetic Theater of War
STRICOM	Simulation, Training and Instrumentation Command
T&E	Test and Evaluation
TAARUS	TACSIM AAR User System
TACSIM	Tactical Simulation
TADIL	Tactical Data Information Link
TADIXS	Tactical Data Information Exchange Subsystem
TAFIM	Technical Architecture Framework for Information Management
TALON	TACSIM Analysis and Operations Node
TBMCS	Theater Battle Management Core System
TENCAP	Tactical Exploitation of National Capabilities
TO&E	Table of Organization and Equipment
TS/SCI	Top Secret/Sensitive Compartmented Information
TUP	TACSIM Utility Program
UAV	Unmanned Aerial Vehicle
USMTF	United States Message Text Format
USSID	United States Signals Intelligence Directive
VV&A	Verification, Validation and Accreditation
VV&C	Verification, Validation, and Certification
WARSIM	Warfighters' Simulation
WIM	WARSIM 2000 Intelligence Module